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ABSTRACT

This bulletin states the educational objectives of the Montgomery County, Maryland, public schools and describes programs in early childhood education, environmental education, outdoor education, a countywide program for gifted and talented children, and high school courses in leadership training and media skills. (JD)

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PROGRAM OF STUDIES

Multidisciplinary Programs

EARLY CHILDHOOD EDUCATION

STUDENT AIDES FOR KINDERGARTEN TEACHERS

ENVIRONMENTAL EDUCATION

GIFTED and TALENTED PROGRAM

STUDENT LEADERSHIP

and INSTRUCTIONAL OBJECTIVES FOR INFORMATION RETRIEVAL and MEDIA PRODUCTION

Department of Instructional Planning and Development
Montgomery County Public Schools
Rockville, Maryland

Spring 1979

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Rockville, Maryland

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FOREWORD

CURRICULUM AND INSTRUCTION

Curriculum may be defined as the general prescription for what teachers should teach and students should learn. In the Montgomery County Public Schools, the *Program of Studies* embodies this prescription. The *Program of Studies* includes the prescribed elements of programs and courses, including course titles, codes, instructional objectives, content descriptions, prerequisites, time allotments, credit values, and a point of view for instruction in each subject area. Based on the MCPS Goals of Education* these prescribed elements constitute the countywide framework within which schools develop and carry out instructional programs tailored to local needs. The relationship of curriculum to instruction in the MCPS, therefore, is that of the more general to the more specific. The *Program of Studies* provides specifications, sets limits, and indicates directions. It has direct and indirect implications for the selection and organization of content, patterns of learning and teaching, and evaluation of outcomes. However, the fulfillment of these specifications and implications is determined at the individual school level. The MCPS instructional program is, therefore, the interaction of the *Program of Studies* framework with the efforts of the individual schools. An appreciation of this interaction is necessary for an understanding of the place of the *Program of Studies* in the work of the schools.

The framework represented by the *Program of Studies* makes possible a unified countywide instructional system which at the same time permits the flexibility of programming required in a large and diverse county. At points, the *Program of Studies* may prescribe instruction very specifically. This may happen with regard to a socially sensitive topic such as sex education, or it may result from the rigorous requirements of establishing an instructional system in mathematics. But this degree of specification is unusual in the *Program of Studies* inasmuch as its level of prescription is generally represented by the instructional objectives it contains for all programs and courses. Instructional objectives are general statements of what the student should attain and are thus appropriate for all students taking a given program or course. Performance objectives are more specific statements of what the student should attain. Formulated or adopted by teachers in relation to the instructional objectives, performance objectives are used in planning classroom instruction. They are thus specific enough to form the basis of day-to-day work and of evaluation of the student's progress. In this movement from instructional to performance objectives, the teacher finds the guidance and the leeway to plan for students of a wide variety of needs and abilities. An examination of the illustrative performance objectives found in instructional guides and in teachers' lesson plans makes clear how great this range is.

An additional means of differentiating instruction which becomes increasingly important at the upper grade levels is provided by elective courses. The use of electives to provide for students of varying abilities and interests differs considerably from subject to subject. Almost all subjects have courses or course sequences which provide for enriched content and advanced or specialized work. Some provide for accelerated movement; some offer additional courses for advanced or specialized work; and some have differentiated paths among required and/or elective courses. The structure of each subject area and the ways by which it employs electives to provide for diverse student needs is indicated in the Grades 9-12 portion of the program description for each subject.

Information regarding each subject area appearing in the *Program of Studies* is presented, when appropriate, as two sections — one for Grades K-8 and one for Grades 9-12. For those subject areas spanning Grades K-12, both sections must be consulted for a full description of the program.

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*Adopted February 12, 1973 by the Board of Education of Montgomery County, Maryland

Each subject area section, whether K-8 or 9-12, has the following subsections: Point of View, General Information, Description of Program, and Instructional Guides.

The Point of View subsection includes reasons for studying the subject, general outcomes sought, ways in which the area of study is pursued in MCPS, and relationships to other subject areas. It also explains how students of varying abilities and interests in the subject are provided with differentiated performance objectives. An explanation of how study of the subject fulfills one or more of the MCPS Goals of Education* is included either in the Point of View subsection or as General Information. For those subject areas spanning Grades K-12, the Point of View is identical in both the K-8 and 9-12 sections.

The General Information subsection includes an explanation of how study of the subject fulfills the MCPS Goals of Education (unless this explanation has appeared in the Point of View) and how it is organized for instruction. Information is given about subject area tests required by the county or state and about federal and state involvement when it is important or distinctive for the subject area. Information about the fulfillment of graduation requirements, Grades 9-12, is also given in some detail for those subjects in which specific requirements exist. Other information specific to the subject also appears.

The largest portion of each subject area section is the Description of Program. It describes the program and supporting courses, identifies the instructional objectives for each, and includes any other prescribed or pertinent elements. For Grades 9-12, this subsection is divided into a List of Courses and a Description of Courses. The List of Courses gives a brief view of subject offerings at this level and serves as a table of contents to the subsection. The course descriptions, along with the narrative material and instructional objectives for each course, give course title, level, length, code, credit value, and prerequisites (if any).

At the end of each subject area section, there appears a list of pertinent MCPS instructional guides. This subsection is amplified to include existing annotated bibliographies, scope and sequence charts, or other such instructional materials in the subject which may have been prepared by MCPS staff.

USE OF THE PROGRAM OF STUDIES

The *Program of Studies,* as the curricular framework for the MCPS, promotes learning through a convergence of educational efforts. Students, teachers, administrators, parents/guardians, and other members of the community use the *Program of Studies* in a variety of ways to achieve the common goal of effective education.

A curriculum stated in terms of general (instructional) objectives informs the *student* of what the school intends him/her to learn and makes it easier to participate in setting specific performance objectives with teachers. Increase in learning efficiency is more apt to take place when a student knows the goal of learning. The student is also more apt to make a commitment to successful learning when at appropriate times he/she is able to select instructional methods and materials. Finally, the student's sense of achievement is reinforced when progress can be noted in the gaining of objectives.

The *teacher* who is familiar with the *Program of Studies* can be more effective in conferring with parents/guardians as well as being in a stronger position to establish specific teaching objectives, plan lessons, select instructional materials, and assess learning progress and teaching functions.

The *school principal* uses the *Program of Studies* as an administrative guide in its listing of approved courses, titles, and codes. The administrator can also deepen staff and community understanding for the

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total educational program as the *Program of Studies* is employed in teacher conferences, faculty and department meetings, and parent/guardian meetings. School effectiveness can be enhanced as the principal organizes people and resources to help learners gain the stated ends of instruction.

Learning outcomes and other information included in the *Program of Studies* give *parents/guardians and other members of the community* information useful to them. They can better understand the instructional program for their elementary school children and advise secondary school youth in course selections. Knowledge of the *Program of Studies* also enables families and other community members to communicate more effectively with their children, teachers, and school administrators.

CURRICULUM CHANGE AND MODIFICATION OF THE PROGRAM OF STUDIES

The curriculum of any public school system must reflect the continual change of the society of which it is a part. As the MCPS curriculum changes, the *Program of Studies,* which establishes the MCPS curriculum in printed form, must be modified accordingly.

In MCPS, a proposal for a new or revised program or course can originate with any individual or group in the community or school system. The staff of the Department of Instructional Planning and Development encourages, coordinates, and assists the development of such proposals. In general, the staff has responsibility for modification of curriculum as required by state and local law and policy, and for continual assessment of the need for curriculum change. Procedures for effecting changes in curriculum and the *Program of Studies* are specified in MCPS Regulation 345-1, "Development and Approval of Curriculum and Supporting Materials." These procedures first state the involvement of community and school personnel in the initiation, development, review, and tryout of proposed curriculum changes; describe the role of the Council on Instruction as a reviewing and recommending body for the superintendent; and identify the final steps of approval by the superintendent and the Board of Education. The regulation also cites relevant portions of these Board of Education policies and Maryland public school laws upon which its procedures rest.

STATE AND FEDERAL GOVERNMENT IN RELATION TO THE CURRICULUM

The major influence of the Maryland State Department of Education upon local curriculum has traditionally been through the MSDE's specification of the requirements for graduation from high school. (These graduation requirements and other provisions for earning credit are summarized on page vii.) Two newer and equally important MSDE influences stem from a state educational accountability law* and the currently evolving Project Basic.**

The Maryland Educational Accountability Act imposes several requirements in its implementation of statewide accountability. These include the establishment of goals and objectives in, but not limited to, reading, writing, and mathematics at three levels — state, school system, and individual school. The goals and objectives at the system level must conform with those established at the state level, and those established by individual schools must conform with those of the local system and the state.

Also required by the Act is a school-by-school survey of the current status of student achievement in relation to established objectives, the development of programs by each school for meeting its own needs, and the establishment of evaluation procedures for determining the effectiveness of these programs. Regular reevaluation of programs, goals, and objectives is also a stipulation of the Act.

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*Article 77, Section 28a, of the *Annotated Code of the Laws of Maryland* was passed during the 1972 session of the Maryland General Assembly. The law has come to be called the "Educational Accountability Act."

**See "The Comprehensive Plan Maryland Competency-Based Prerequisites for Graduation," a publication of the Project Basic Office of the Maryland State Department of Education, 1978.

The state plan for implementation of the Accountability Act* specified that, effective the spring of 1974, the Iowa Test of Basic Skills and the Cognitive Abilities Test would be given to all pupils in Grades 3, 5, and 7. Use of these tests has given rise to concerns about the limitations of nationally norm-referenced tests and the small part of the MCPS curriculum that is measured by the ITBS. As a result, the Maryland State Board of Education has adopted a new schedule of assessment which includes the use of the Maryland Functional Reading Test and the Maryland Functional Mathematics Test in the secondary grades. These two tests, developed at the state level, are criterion-referenced tests. This means that they test specific skills or information without regard to how well similar student populations do on a given test item. Students who pass these tests in the ninth grade will not be tested again in connection with this program. Those who fail either test will receive appropriate instruction and retesting.

Through its Project Basic, the Maryland State Board of Education is reaffirming its responsibility for establishing statewide educational standards and stating its commitment to the development of behaviors basic to effective adulthood.** The state board specified five areas of human activity in which students should develop skills and attitudes for life-functioning. The five areas and their definitions as stated in the paper are:

A. Basic Skills — All people must be able to read, write, and calculate.

B. Survival Skills — Schooling should equip all public school youth with these kinds of fundamental skills: consumer, parenting, interpersonal relations, mechanical, and personal finance.

C. World of Work — Schooling should lead to securing employment upon graduation or post-secondary education. All public school youth should be made aware of the options and opportunities of the world of work without racial or sexual bias.

D. World of Leisure — Schooling should help the student become involved in creative and healthful lifetime activities.

E. Citizenship — Citizenship should include becoming involved in the electoral process, participating in local civic affairs, and understanding the system of justice.

To implement this action of the Maryland State Board of Education, State Superintendent of Schools David Hornbeck established the Project Basic Office. Its staff is currently involved in identifying the basic competencies in the five areas. It is also to design and develop instructional activities for the five areas of human activity, develop assessment measures to certify student acquisition of the specified competencies, and coordinate the statewide implementation of minimal competencies as a prerequisite to graduation. The project is to be fully implemented by 1982.

The impact upon the MCPS curriculum of the educational accountability and the competencies programs is as yet difficult to calculate. In one sense, the impact may not be great because the objectives of the accountability program (and, it is anticipated, the competencies of Project Basic) are to a large extent already included in the MCPS curriculum. References to the impact of the educational accountability law on specific portions of curriculum are included in the *Program of Studies* within the Information sections of the descriptions for Reading, English Language Arts, and Mathematics. On the other hand, these two state programs may have a significant impact on curriculum emphasis and

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*See the "Maryland Handbook on the Accountability Assessment Program, Maryland State Department of Education, Adapted to MCPS Test Administration Procedures," issued by the MCPS Department of Pupil and Program Appraisal, February 1, 1974.

**See *The Mission of Schooling*, Maryland State Board of Education, January 1977.

balance. They could affect time allotments within and among subjects and courses and thus affect even the definition of the subjects and courses themselves. How these statewide programs are developed and how MCPS students perform on the required evaluations will determine the impact of these programs upon curriculum. They are certain to have impact upon instruction and probably even more impact on evaluation procedures.

Federal and other state involvement in curriculum is mentioned in the descriptions of those subject areas where it is found, e.g., health education and some of the vocational education subjects.

TIME ALLOCATIONS AND GRADUATION REQUIREMENTS

In the following chart, time allocations are shown for subjects Kindergarten through Grade 8. The allocations are given in minutes per week, and school administrators are expected to use them in establishing program balance.

Subject	K	Grades 1-2	Grades 3-6	Grades 7-8
English Language Arts/Reading	200	700	475	225
Mathematics	75	200	225	225
Music	100	100	100	75
Physical Education	125	150	150	225
Science	75	125	225	225
Social Studies	75	125	225	225
Home Economics and Industrial Education	—	—	—	75
Electives				225
Total	750	1500	1500	1575

The MCPS Policy on the Middle School directs the school system to provide "a curriculum based on the developmental needs of pre- and early adolescents which places primary emphasis on acquisition of basic skills but also provides a wide range of exploratory and enrichment experiences."* Middle schools are organized into interdisciplinary teaching teams which provide opportunities for flexible student grouping and scheduling. Therefore, daily, weekly, and master schedules in middle schools will not be characterized by fixed time intervals for each subject area.

New standards for high school graduation were enacted by the Maryland State Board of Education on November 27, 1974, and became effective for students entering ninth grade in the fall of 1975. These standards thus become effective for all students in Grades 9-12 in the school year 1978-79. The standards define a unit of credit; specify credit requirements for graduation; and list several provisions for earning credit and several alternatives to four-year enrollment. MCPS Regulation 310-3, "High School Graduation Requirements," includes these state graduation requirements, the policy of the Montgomery County Board of Education with regard to them, and guidelines for their implementation.

*The MCPS Policy on the Middle School, adopted December 19, 1977

With exceptions specified under "Alternatives to Four-Year Enrollment," the MCPS student must, beyond the eighth grade, complete four years of approved study and earn a minimum of 20 credits. Twelve and one-half of these credits must be in the areas specified below. The additional seven and one-half elective minimum units may be chosen from offerings in any curricular area.

English Language Arts	4 credits
Social Studies	3 credits (One must be United States History; and one must deal with contemporary issues including local, state, and national governments.)
Science	2 credits
Mathematics	2 credits
Physical Education	One-half credit, required in Grade 9, and one-half credit sometime during Grades 10-12
Physical Activity*	Two semesters of physical activity sometime during Grades 10-12 (One-half credit of elective physical education fulfills the requirement of two semesters of physical activity.)
Health Education	One-half credit, required in Grade 9

The several provisions listed by the state for earning credit in addition to regular school day and school year programs are summer school, evening school, correspondence courses, tutoring, examination, and work study programs or experience outside the school. On pages 10 and 11 of MCPS Regulation 310-3, the Montgomery County Board of Education guidelines for each of these provisions are shown. The provision on credit by examination is being implemented as examinations appropriate to MCPS courses can be developed. During the 1977-78 school year, such examinations were given for Algebra 2; Trigonometry; and English, Grade 12.

The alternatives to four-year enrollment are an accelerated twenty-credit program; an early college admission program; early admission to approved vocational, technical, or other post-secondary school; and a job entry training program. To receive a high school diploma through any one of these alternatives, the MCPS student must receive approval for waiver of the four-year enrollment requirement. MCPS Regulation 310-3 includes the steps for requesting and receiving approval of the waiver. In addition to reading the regulation, which is available in all school offices and in school instructional materials centers, students and parents/guardians should consult local school counselors with regard to any of these provisions or those concerning earning credit outside the regular school day and year.

INTERAGENCY PROGRAMS

As has been stated, the *Program of Studies* prescribes the curriculum for all MCPS students by allowing for much differentiation of instruction. Instructional alternatives are created by varying content, assessment criteria, pace, and the pattern of courses the student takes. Beyond this differentiation, special instruction and other services are provided for handicapped students. In order to provide programs for all handicapped students, MCPS coordinates services with local and state agencies and other resources.

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* See pages 3-4 of the Physical Education Grades 9-12 section of the *Program of Studies*.

For those students who are most severely handicapped, including those who are placed outside of MCPS schools, the MCPS curriculum is adapted as required to meet the limitations of the students. Information about programs for these students is available from the Placement Unit of the Department of Interagency Programs, MCPS Office of Continuum Education.

AVAILABILITY OF INSTRUCTIONAL MATERIALS

The instructional guides listed at the end of each subject area section of the *Program of Studies* are on file in school Instructional Media Centers and in the Professional Library (formerly the Educational Materials Laboratory) at the Educational Services Center. They may be ordered from the Division of Supply Management, Department of School Services, MCPS Office of Supportive Services, which maintains a list of the guides stocked in its warehouse.

Occasionally, there will be a need in a subject area for publication of some supplemental instructional material such as a scope and sequence chart or a bibliography. If such exist, they are also listed at the end of the subject area section.

The Department of Instructional Resources, MCPS Office of Program Development, maintains files of approved textbooks and text materials and of approved films. A list of approved textbooks and text materials is published annually. Questions regarding this list should be addressed to the Division of Instructional Materials, Evaluation and Selection. A list of approved films is published periodically, and questions regarding it should be addressed to the Film Library of the Division of Instructional Materials, MCPS Department of Instructional Resources.

The Goals of Education

Adopted by the Board of Education — February 12, 1973

The goals of education for the Montgomery County Public Schools are set forth in this statement of public policy to guide the school system in developing, implementing, and improving educational programs for its students. This statement outlines those goals considered by the citizens of the county as most important for the education of their children in public schools and for which the citizens will hold the school system responsible and accountable.

The school system has the primary responsibility for some of these goals. For others, it shares that responsibility with the home and other community institutions.

The extent to which these goals can be realized will depend upon the endorsement by and continuing commitment of the school system staff, students, parents, and the community. With broad endorsement and wide support, the Montgomery County Public Schools will continue its development to serve its students and community in the most effective way possible.

Education is a process that encompasses the total experiences of each individual throughout a lifetime of formal and informal learning. The school program, as a keystone in this process, should provide opportunities and encouragement for students to acquire knowledge, to explore ideas, to ask questions, and to seek answers that will lead to sound and useful conclusions.

The probability of success motivates students to learn. Each school must create a program and maintain a climate in which every student has opportunities for success. Each individual is unique, and the school shall encourage that uniqueness. The school should help the student understand his [/her] values and the values of others.

The school program, while developing the skills of learning, should be based on the study of broad human concerns, flexible enough to deal with changing concerns and at the same time related to the needs, interests, and concerns of each student. The program should offer opportunities for decision-making. It should help the student develop the capacity to learn throughout his [/her] lifetime, to respond to and understand other human beings, and to accept full responsibility for the results of his [/her] actions.

Therefore, the Montgomery County Public Schools dedicates itself to provide the opportunity, encouragement, and guidance to make it possible for every child to attain the following goals of education:

ACADEMIC SKILLS

The fundamental responsibility of the school is to develop programs that enable each child to acquire those skills basic to all learning. The achievement of all other goals depends upon the success of the school in ensuring that each student, according to his [/her] own abilities, attain the following basic skills:

- **Reading:** The ability to read and comprehend written material and relate it to other knowledge
- **Composition:** The ability to write with precision, clarity, and acceptable usage, whether to inform, inspire, or persuade
- **Listening and Speaking:** The ability to listen attentively and with understanding and to speak with confidence and effectiveness, whether from written material or extemporaneously
- **Mathematics:** The ability to perform computations, to solve common problems of mathematics and logic, and to understand the structure of mathematics so it can be a useful tool in daily living
- **Study:** The development of basic study skills so that he [/she] may acquire knowledge efficiently
- **The Arts:** The development of some of the basic disciplines and skills in the performing and creative arts to be used throughout his [/her] life for communication, expression, and enjoyment
- **Observation:** The ability to identify and differentiate elements of the world around him [/her] as they are useful in personal, academic, and artistic pursuits

PHYSICAL DEVELOPMENT

Each person matures physically at a different rate and possesses differing capabilities. The school has the obligation to help each student:

- understand the biological functioning of his [/her] body
- make the best both of physical talents and limitations
- develop good health habits, skills, and interests to maintain his [/her] body in optimum condition throughout his [/her] lifetime

INTELLECTUAL DEVELOPMENT

In addition to acquiring academic skills, each individual should develop his [/her] intellectual capabilities to the fullest extent possible. Therefore, the school will encourage each pupil:

- to think creatively
- to reason logically
- to apply knowledge usefully
- to deal with abstract concepts
- to solve problems

THE INDIVIDUAL AND SOCIETY

Every person must learn to live in a society. The school must help each student develop an understanding of [people] and of how the individual depends upon others and they on him [/her]. This requires that each student gain:

- knowledge of himself [/herself] and the characteristics, needs, and desires he [/she] shares with others
- sensitivity to others and their ideas, and the ability to act responsibly in various situations
- the ability to function productively as a member of a group
- familiarity with the legal, moral, ethical, and cultural heritages of his [/her] and other societies
- knowledge of the various political systems and philosophies of the world

SCIENTIFIC UNDERSTANDING

[We] must exist in the natural world. The school must help each student understand nature's impact on [us] and [our] impact on nature. This requires that each student gain:

- knowledge of natural phenomena and their effect on [people]
- understanding of scientific advances and their part in modern technology
- understanding of the scientific method
- appreciation of the ways in which the application of scientific principles can improve the quality of life while preserving the natural order

AESTHETIC EXPRESSION

[We], to realize [our] full potential, must be able to sense and appreciate beauty in the world around [us], whether created by nature or by [people]. The school must help each student gain:

- knowledge of the nature of the creative performing arts
- experience with a wide variety of art forms
- a perspective for developing his [/her] own aesthetic criteria and tastes
- understanding of the contribution of the arts to human communication

CAREER DEVELOPMENT

Productive and satisfying work enriches [our lives]; and with increasing leisure time, many people will use various occupational skills for avocational purposes as well. The school must help each student gain:

- knowledge and appreciation of the wide variety and interrelationships of occupations in modern society
- opportunities to explore potential occupations in relation to personal aptitudes and interests, unrestricted by stereotypes of sex, race, or socio-economic level
- the knowledge, skills, and abilities that enable him [/her] to secure satisfying employment, embark upon further training and education in a chosen career field, and adapt occupational talents to changing job demands and opportunities

COMMITMENTS

The Board of Education and the staff of the Montgomery County Public Schools must create and maintain an educational environment that promotes the attainment of these goals by all students. Toward this end, therefore, the public schools make the following commitments to the citizens of Montgomery County:

- *To attract and retain the most qualified and best trained staff possible through dynamic programs of recruitment, supervision, and continuing in-service training and staff development opportunities*
- *To develop and implement a comprehensive and flexible instructional program to achieve the aforementioned goals and to provide the facilities, materials, and equipment needed to enhance the effectiveness of the program*
- *To evaluate the effectiveness of the instructional program continuously, and regularly report the findings to students, parents, staff, and the community*
- *To adopt new and different approaches when it is determined that they will contribute more effectively to the fulfillment of the goals*
- *To encourage a continuing dialogue with the entire community, making every effort to communicate needs and achievements, and to be responsive to the needs and aspirations of the school community*
- *To utilize facilities and staff, in cooperation with other agencies, in the development of preschool, community school, and adult education programs that will meet the continuing educational needs of all citizens*
- *To provide an accountability procedure for informing county citizens of the objectives and costs of their school system and of reporting periodically on the educational investments made with their tax dollars*

MULTIDISCIPLINARY PROGRAMS

The programs described in this section bear special relationships to the subjects described in other sections of the *Program of Studies*. Early Childhood Education draws upon all of the disciplines. It takes its focus from the nature of the young learner. The description of Early Childhood Education helps the reader to see the unity of the Kindergarten through Grade 3 program and its relationship to the child's preschool experiences.

The Program for Student Aides for Kindergarten Teachers was designed primarily to integrate into the adolescents' learning, certain specific skills for assisting a kindergarten teacher and for working with young children. Since this program places major emphasis on providing the young child with supplementary educational assistance through the use of high school student aides, it is administered and supervised by early childhood education staff members.

Environmental Education is a program which responds to an awareness of the compelling significance of the environmental crisis and of the inability of any single discipline to describe and deal with it. The program provides curriculum that helps students to apply learnings from science, mathematics, social studies, and art to the analysis and possible solution of environmental issues. Environmental Education builds upon knowledge students have acquired in the study of these disciplines.

A countywide program specifically for Gifted and Talented students reflects a renewed and multidisciplinary emphasis. The statement on this program gives its point of view and a description of its current objectives and activities.

In addition, this section of the *Program of Studies* includes a high school course description. Curricular responsibility for the course, Student Leadership, is assigned to the social studies coordinator in the Department of Instructional Planning and Development. However, because the leadership training skills of the course extend beyond the scope of social studies, the course does not carry social studies credit. The student can apply credit earned for the course toward the required elective credits for graduation.

Staff members of the Department of Instructional Resources integrate their work closely with day-to-day classroom teaching objectives. A major expression of and guide to this integration, because it applies to all subject areas, is located in this portion of the *Program of Studies*. It takes the form of a set of instructional objectives for information retrieval and communication skills. The set is organized in skill clusters and presented in a grid format which conveys the relationship of grade level to degree of emphasis on each objective.

EARLY CHILDHOOD EDUCATION

POINT OF VIEW

Early childhood education in Montgomery County encompasses experiences and draws on all of the disciplines which focus on the education of young children through eight years of age. Goals within the early childhood program are structured to enable children to:

Establish a foundation for learning and acquire skills to pursue knowledge

Develop positive feelings about themselves and about their own abilities to create and learn

Understand their strengths and limitations; cope with success and failure

Participate in activities that increase their physical and mental health and develop positive habits of personal care

Meet and work with persons of different sexes, races, ages, and cultural and economic backgrounds

Work dependently, independently, and interdependently as the situation requires

All of the above goals require achievement of certain skills on the part of the child. When thinking about the young child and implementing programs, one recognizes that the skills related to a specific goal are also related to other goals. Any response which is made by a child calls upon all areas of growth working together. Little is known about the degree to which strengthening any one area of growth will result in a greater facility for learning. However, it has been observed that experiences of success in any endeavor build self-confidence, which has a positive effect on new learnings and often increases peer acceptance.

The Program for Student Aides for Kindergarten Teachers was designed primarily to integrate into the adolescents' learning certain specific skills for assisting a kindergarten teacher and for working with young children. Since this program places major emphasis on providing the young child with supplementary educational assistance through the use of high school student aides, it is administered and supervised by early childhood education staff members.

GENERAL INFORMATION

Most of the children in Montgomery County begin their *public* schooling in Kindergarten. However, some children, because of their special needs, are provided preKindergarten programs. The chart below provides an overview of the scope of programs and services available to young children in the school system. These programs and services are indicated by the "X." Selected preschool children and school age students may, because of their special needs, enter programs through private school placements which may be partially or fully paid for by the school system.

MCPS Early Childhood Programs and Services

Age	Parent Infant (Birth-3 Yrs.)	Preschool (3-4 Yrs.)	Head Start (3-4 Yrs.)	Kdg. (4-5 Yrs.)	Grade 1 (5-6 Yrs.)	Grade 2 (6-7 Yrs.)	Grade 3 (7-8 Yrs.)
Number Served*	26	30	750	6,182	7,685	7,929	7,929
Auditory	X	X	X	X	X	X	X
Speech/Language	X	X	X	X	X	X	X
Vision	X	X	X	X	X	X	X
Reading				X	X	X	X
Title I				X	X	X	X
Resource Room (D/P)				X	X	X	X
ESOL/Bilingual				X	X	X	X
Special Classes	X	X		X	X	X	X
Special Schools/Learning Centers				X	X	X	X

Young children in MCPS who receive educational programs, as indicated above, acquire them through various levels of services. Placement for children who qualify for preschool programs or special classes is determined by the Central Admission, Review and Dismissal (CARD) and the Area Admission, Review and Dismissal (AARD) Committees.

Primary-grade children (K-3) may receive auditory services as part of the regular school placement or as part of a special class assignment. Other services that may assist in implementing a child's program include reading, speech and language, English for Speakers of Other Languages (ESOL), diagnostic/prescriptive, etc. These services are arranged and coordinated through various teams of education specialists at the local school and through the area and central office staffs. Teams in every school — such as the Educational Management Team (EMT) and/or the School Admission, Review, and Dismissal (SARD) Committee — meet on a regular basis to review specific program plans and to monitor the progress of the children receiving these services. They also meet to design teaching strategies to assist classroom teachers in working with children in regular school programs. Parents/guardians may be asked to attend a team meeting or conference with a teacher and to assist with planning the educational program for their children. In many cases, it requires the principal, classroom teacher, specific specialists, and the parent/guardian, working jointly, to provide a continuous progress educational program for a child.

In addition to the general early childhood programs discussed earlier, there are some preschoolers in high school child development laboratories and other preschoolers who, with a parent, attend parent-infant and parent-child development classes offered by Adult Education. The child development labs give high school students an opportunity to learn about child growth and development by observing and working with young children. These labs also provide opportunities for the young child to learn and grow with peers.

*Number of children being served as of June 1978

An early childhood internship program, "Student Aides for Kindergarten Teachers," gives high school students a chance to work with teachers and children in classrooms or community settings.

An annual spring Kindergarten Roundup, called the preschool conference, provides a school staff with an opportunity not only to meet parents/guardians but to observe their children several months before the first day of kindergarten. This preschool conference is also planned to meet the following objectives:

- Parent/Guardian and Child Orientation to the School

  . to begin the orientation of each child and parent/guardian to school by providing opportunities to visit the school and to meet key persons such as the teacher, principal, speech pathologist, and other selected staff

- Appraisal of the Child in Terms of Program Needs

  . to obtain information from the parent/guardian about the child and to provide the professional staff — including the principal, kindergarten teacher, speech pathologist, and other selected staff — with time to observe the child for data that will aid in planning his/her educational program
  . to permit early identification of those children with possible learning disabilities and other special needs
  . to provide an opportunity for staff to review recent medical and dental evaluations of the child

- Information on Immunizations Required by State Law

  . to help the parents/guardians understand that they are required either to show proof of immunizations for diphtheria, whooping cough, tetanus, poliomyelitis, measles, and rubella (German measles); or to provide an acceptable waiver form for immunization
  . to help parents understand that new students will not be permitted to attend class beyond the dates specified by law until either proof of such immunizations or an acceptable waiver has been presented

- Establish Follow-up Procedures on Children Identified with Special Needs or Possible Learning Disabilities

  . to direct parents/guardians of those children who have been identified as having special needs or possible learning disabilities, to educational and health programs available to serve these children
  . to identify a staff person who will be responsible to work with the parents/guardians to insure that the identified children receive special services

The Maryland state law[1] mandates that each student entering the first year in any primary grade in any public school must be evaluated for the purpose of identifying learning disabilities. The law also states that the schools are to develop and implement educational programs based upon the needs of the student so identified.

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1. Section 98C, added to Article 77 of the *Annotated Code of Maryland* by House Bill 234

The primary method for identifying those Kindergarten-Grade 2 students who may have learning disabilities is through the use of the *Maryland Systematic Teacher Observation* Instrument (MSTOI), which was designed by the Maryland State Department of Education. Students new to Grade 3 not previously screened by the MSTOI are screened through use of the *Pupil Rating Scale* (PRS).[2] Although these instruments themselves are relatively new to MCPS, teachers' observations of students' behaviors and information received from parents/guardians have long been considered valuable resources in identifying students with potential learning problems.

The *Maryland Systematic Teacher Observation Instrument* and the *Pupil Rating Scale* are screening instruments. They do not provide definitive results. The results found by using these instruments with any individual serve to alert the teacher to current or potential learning problems. The fullest and best predictive judgment about possible learning difficulties is made by the teacher looking at the total history and performance of the child.

The MSTOI is administered each fall to all kindergarten students and to new students in Grades One and Two who have not already been screened by it. The PRS is administered to third graders who have not been previously screened on the MSTOI. The items on the data collection form are completed early in November by the classroom teacher for each designated student in the class. The computer analyzes and summarizes the data and returns the results for each student to the teacher within a three-week period. The teachers will share this information with the parents/guardians in individual conferences and will use it, along with other data, as a basis for planning the child's educational program.

All students who are identified as having special needs will be reviewed by the local school educational management team, led by the school principal and consisting of professionals serving the school. For each student who requires a program adjustment, the team is responsible for developing an educational program and for monitoring the student's progress.

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2. H. R. Myklebust, the *Pupil Rating Scale: Screening for Learning Disabilities* (New York: Grune and Stratton, Inc., 1971).

DESCRIPTION OF PROGRAM

The early childhood education program is structured to meet the needs of the young learner. Five aspects of growth and development are recognized as contributing to an interrelated system of behavior operating within the child. These include the affective, psychomotor, perceptual, cognitive, and volitional areas of growth. At all levels of development, it is the total intact functioning of the individual that produces success. The potential of each child for development in each of these areas of growth will be unique. Also, within an individual child, there may be differences in strengths at any one time. For purposes of examination or planning a program, the following areas within each aspect are identified:

Affective

Feelings about self
Relationships to peers
Relationships to a group
Respect for property

Psychomotor

Large muscle control
Small muscle control

Perceptual

Auditory area
Visual area
Other sensory areas

Cognitive

Word meanings
Location/recall
Translation
Interpretation
Prediction
Application
Synthesis
Evaluation

Volitional

Motivation

Upon completion of Grade 3, the child should:

AFFECTIVE AREA

- be free from overly shy or withdrawn behavior
- accept changes in routine
- be well adjusted in school work
- greet new situations enthusiastically
- not become easily upset at mistakes
- show independence
- use evaluations for improvement
- solve appropriate problems
- share and play cooperatively with others
- find acceptance by other children
- form close relationships with some children
- offer help when another child needs it
- assume a share of group responsibility
- conform to rules
- take turns in securing help from teachers
- offer ideas
- seek help from others when needed
- take care of personal property
- take care of the school's and other people's property
- organize work space and materials
- return materials to appropriate places

PSYCHOMOTOR AREA

- coordinate large muscles to move the body from place to place
- coordinate feet movements with the whole body
- support own weight
- coordinate eyes with movement of body parts
- coordinate fine muscles to work with small manipulative materials
- coordinate fine muscles to use "tools" with control

PERCEPTUAL AREA

- determine the differences in high and low pitch
- discriminate between environmental sounds
- match beginning sounds of words
- select rhyming words
- separate a particular sound from background noise
- discriminate between rhythmic patterns of sound
- perceive rhythmic pattern
- compare objects in the classroom to his/her own body size
- recognize like symbols
- distinguish a figure from a background
- recognize similarities and differences in objects
- consistently recognize objects/symbols in different forms
- demonstrate eye-hand coordination
- locate objects in space
- interpret spatial relationships
- demonstrate visual memory
- use touch to identify elements in the environment
- use taste to identify elements in the environment
- use smell to identify elements in the environment

COGNITIVE AREA

- identify the characteristics of the body
- identify objects in the environment
- follow directions involving basic concepts
- identify objects, people, alphabet letters, and concepts by name
- supply synonyms and antonyms of given words
- use the vocabulary of specific subject matter fields
- use vocabulary appropriately when describing actions
- use vocabulary appropriately when describing feelings
- observe home and school environment
- question appropriate people (teacher, family, peers, librarian, others in community)
- use instructional materials (pictures, film loops, filmstrips, films, books, etc.)
- remember facts
- translate from one form to another

  a) verbal to pictorial
  b) pictorial to verbal
  c) verbal to action
  d) pictorial to action
  e) one verbal to another verbal

f) verbal to nonverbal
g) nonverbal to verbal
h) one level of abstraction to another
i) visual and/or auditory memory to written symbols

- identify the main idea in a story
- differentiate between reality and fantasy
- arrange ideas in logical or chronological sequence
- classify ideas in picture form
- make analogies
- draw an inference from pictorial information
- draw an inference from verbal information
- draw an inference from nonverbal information
- predict

a) endings of stories
b) beginnings of stories
c) changes in the environment
d) outcomes of science experiments
e) behavior of others
f) consequences of his/her own behavior

- use generalizations to justify decisions
- apply information gained in specific situations to solve a related problem
- combine ideas of others with own ideas to

a) inform others
b) describe
c) persuade
d) impress
e) entertain
f) produce original creation

- make judgments based on his/her own value system
- offer opinion in terms of his/her own judgment
- use established standards for making judgments about the acceptability of the behavior of others
- use standards in evaluating his/her own art work

VOLITIONAL AREA

- pay attention
- set goals with teacher
- set realistic self-goals independently
- persevere
- make choices in social situation
- become involved in making choices in the learning situation
- delay gratification

For student outcomes K-3 specific to other disciplines, see pertinent sections in the *Program of Studies.*

MCPS INSTRUCTIONAL GUIDES AND RELATED MATERIALS[1]

Books of Interest for Early Childhood Educators, April 1975.

Early Childhood Instructional Materials Catalog for Kindergarten, First and Second Grades, 1978.

Films of Interest for Early Childhood Educators, April 1975.

Films of Interest for Primary Children, April 1975.

Handbook: Early Identification of Learning Disabilities and Suggestions to Assist Classroom Teachers in Program Design for Grades Kindergarten, 1, 2, and 3, Summer 1978.

Preschool Conference Procedures (Kindergarten Roundup), 1977.

Student Aides for Kindergarten Teachers Program — A Tenth, Eleventh, and Twelfth Grade Supervised Internship, 1977.

1. Other documents for the Kindergarten through Grade 3 Programs are incorporated into other appropriate sections of the *Program of Studies*.

STUDENT AIDES FOR KINDERGARTEN TEACHERS

POINT OF VIEW

An internship program to prepare student aides for kindergarten teachers might focus specifically on one of the three component segments that interact in any teacher aide experience. The course could be developed from the viewpoint of the kindergarten teacher, as one who needs additional help in the classroom; or from the viewpoint of the high school student, as one who has enrolled in an elective secondary course; or from the viewpoint of the kindergarten child, as one who is just beginning school and will be receiving supplementary educational assistance. Inasmuch as each of the three viewpoints is equally important, the perspective of this course of study has been developed with consideration to combining the elements fundamental to each. The result will hopefully be the development of a working team of people — a professional (the kindergarten teacher) and a paraprofessional (the high school student) — supporting one another to help educate young children. The development of this working team creates the resulting interrelatedness and mutual benefit to each of the three people (viz., the kindergarten child, the high school aide, and the kindergarten teacher) who are affected by their involvement in this program.

Also underlying this course of study are some of the following basic assumptions about the high school student's participation in this program:

High school students can be of significant and beneficial assistance to a classroom teacher while simultaneously integrating some fundamental knowledge of young children and skills of working effectively with those children.

The experience of working firsthand with children enhances and increases the retained learning of this knowledge and these skills.

Participation in this real life experience doing appealing and worthwhile tasks can increase the adolescent's own personal sense of competence, responsibility, independence, and success.

This experience enhances the adolescent's own entrance into the ongoing adult society by providing an awareness of tangible and acceptable career opportunities.

GENERAL INFORMATION

Under the guidance of a professional trained teacher, student aides view the world of young children by participating in the classroom activities of a kindergarten in a nearby elementary school. Students assist the kindergarten teacher and have opportunities to see how young children grow and learn.

Goals of the program center around understanding the characteristics of kindergarten children; setting up and maintaining a safe and healthy learning environment for children; advancing the physical and intellectual abilities of children; building positive self-concept and individual strength in children; organizing and sustaining the positive functioning of children in groups; and helping to carry out supplementary responsibilities related to the children's programs.

The course begins with a spring and summer training program that includes an orientation to the roles and responsibilities of an aide; preparation for work with young children in the areas of the elementary curriculum; techniques for using classroom materials and equipment; and an introduction to the elementary school, its principal, and its teachers. Students assist in the classroom each day in either the

morning or afternoon for a full kindergarten session. Monthly seminars are held at the high school to extend students' field experiences. Seminar topics during the first semester include techniques for working with children, learning disabilities, children's art and creativity, careers, and summer jobs. The second semester focuses on language skills development, exceptional children (includes field trips and speakers), mathematics, and physical education. Regular observations are made of the aides participating at the elementary school by the teacher coordinating the program.

DESCRIPTION OF PROGRAM

The aspect of Early Childhood Education that is directly applicable to Grades 10-12 is the Student Aides for Kindergarten Teachers experience described below:

Student Aides for Kindergarten Teachers — Grades 10, 11, 12		
7850	1 year (double period)	2 credits
Student Aides for Kindergarten Teachers A*		
7851	1 semester (double period)	1 credit
Student Aides for Kindergarten Teachers B*		
7852	1 semester (double period)	1 credit
Student Aides for Kindergarten Teachers		
7853	1 year (triple period)	3 credits
Student Aides for Kindergarten Teachers A*		
7854	1 semester (triple period)	1.5 credits
Student Aides for Kindergarten Teachers B*		
7855	1 semester (triple period)	1.5 credits

Upon completion of the course in Student Aides for Kindergarten Teachers, the student should be able to assist kindergarten teachers to:

- organize classroom learning centers
- organize classroom learning centers in such a way as to help young children learn responsibilities appropriate to their age
- take preventive measures against any hazards to the physical safety of the children
- establish a planned sequence of active and quiet periods of indoor and outdoor activities
- recognize symptoms in children which may indicate a need for health care
- choose classroom materials and activities appropriate for young children
- use a variety of techniques for advancing development in language, mathematics, science, social studies, and other curriculum areas
- implement classroom standards, rules, and regulations appropriate for young children
- construct instructional materials such as flannel board stories and tape recordings for immediate and future use in the classroom with children

*High school students are encouraged to take this program for a full year. In selected cases, students may enroll in the program for one semester.

Upon completion of the course in Student Aides for Kindergarten Teachers, the student should reflect his/her own personal growth by being able to:

- identify the behavior, development, and needs of young children
- relate, to his/her own self-development, characteristics, and needs, a knowledge of young children's growth, development, and needs
- recognize the variety of career possibilities available at an elementary school level
- relate, to his/her own choice of a possible career in teaching, a knowledge of the kindergarten teacher's roles and responsibilities
- develop skills in working with individual children and with small and large groups of children
- relate the skills and capabilities developed from working in the classroom to a sense of personal self-worth and confidence

MCPS COURSES OF STUDY AND CURRICULUM GUIDES

Student Aides for Kindergarten Teachers Program — A Tenth, Eleventh, and Twelfth Grade Supervised Internship

A Handbook for the Student Aides for Kindergarten Teachers Program

ENVIRONMENTAL EDUCATION

POINT OF VIEW

Environmental education is a logical part of many subjects, especially science and social studies. Its interdisciplinary nature has been represented effectively by the editors of seven educational journals in a joint statement:

> "Environmental problems require a comprehensive, problem-solving approach and a concerted effort by all disciplines. For example, if teachers from several study areas attack the same topic at the same time, the students are almost forced to draw the conclusion that there are relationships between these areas or that they are all a part of a whole.
>
> "Young people can be adequately prepared to deal with environmental questions only through education that includes all of the educational disciplines, the interplay among them, and the recognition that each individual constantly feels and responds to his [/her] environment. Today, human beings have the power through technology to change greatly the physical environment, and increasingly they have the power through biological discoveries to change human beings themselves. Everywhere we see technology in conflict with humankind's need for clean air and water; quiet, open space; and aesthetically meaningful and pleasing surroundings in which to live, work, and enjoy recreation in everyday life. Gradually we are becoming aware of regional and worldwide efforts to deal with matters such as population, economic growth, climate control, resources, food supplies, ocean resources and control, wildlife preservation, and national parks. We are also becoming aware of efforts to preserve the aesthetic quality of people's daily living areas: the streets, highways, offices, shopping areas, apartments, and schools. Oncoming generations must be not only aware of these efforts but active in their support of them.
>
> "In our teaching we need to provide (a) information on the 'science' of a problem and the various effects of different solutions; (b) understanding of ways to evaluate risks and benefits; and (c) opportunities to make value judgments. This will assist students to feel experiences aesthetically; to be sensitive to the qualities of environments which make up their world; and to initiate ways to redesign and create aesthetically rich, ecologically sound environments. In both teaching and learning, we must perceive the beauties and patterns in life and the worth of the individual."[1]

GENERAL INFORMATION

Although environmental education is interdisciplinary by nature, it nevertheless has a perspective which is distinctive. This perspective focuses upon the biosphere as an essentially closed system with limited resources requiring management and protection. Content material from many disciplines may be organized around this theme, thus avoiding the addition of another subject to the already crowded curriculum. Environmental education also can meet the demand of both teachers and students that education focus on issues that are vital and contemporary. When this is done, it provides additional meaning and emphasis to the subject matter disciplines through which it is taught.

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1. "A Declaration on Interdisciplinary Environmental Education." *Art Education*, February 1975.

The major objectives of environmental education in the elementary grades are to:

- cultivate children's awareness, knowledge, appreciation, and concern for the natural environment and the effect of people's actions upon it
- provide children with many direct experiences in using scientific processes such as observing, measuring, classifying, and hypothesizing
- make the children's regular school program more meaningful by applying the knowledge and skills acquired in the classroom to real-life situations beyond the classroom
- motivate children to develop positive attitudes toward learning through varied experiences in the natural environment

In addition to the above, the objectives for the residential outdoor education program are to:

- help children live democratically and responsibly for the welfare of the total group
- improve human relations among children and between children and adults
- improve children's physical fitness

DESCRIPTION OF PROGRAM

On the elementary level, environmental education incorporates material from many subjects but generally is built upon concepts in social studies and science. The students' major involvement with the environment occurs during the last year in elementary school when they participate in the residential outdoor education program, studying things outdoors which can best be learned outdoors, including different ecosystems; e.g., ponds, streams, forests, and fields (see Science K-8 section of *Program of Studies*), weather, astronomy, orienteering, and selected aspects of other subjects. The continued use of rented centers and the Lathrop E. Smith Environmental Education Center make it possible to involve all sixth grade students in the residential outdoor education program. Since this MCPS-owned facility is located nearby in the Rock Creek Regional Park, there are many opportunities to involve students from other grade levels in day-use outdoor environmental programs.

Environmental education at the secondary level is primarily the responsibility of the individual school or teacher. Its broad goal is to bring about increased environmental awareness, knowledge, and responsibility; and the overall objectives are to enable each student to:

- recognize that natural resources are essential to life
- identify and relate the uses of resources to the quality of the environment and aesthetic appreciation
- determine the varied interrelationships that exist among natural and human resources
- compare population density to the availability of resources and standards of living
- demonstrate suitable means to deal with the negative effects on the environment that result from the development of resources
- evaluate the political action taken with regard to resources and future political developments essential to an improved world environment

To assist teachers, MCPS has conducted workshops and courses and developed environmental units. These units cover a variety of environmental areas including the study of solid waste, air pollution, energy conservation, and water quality. Many of these locally developed programs provide students with the opportunities to become actively involved with the real environmental concerns of their communities. An example is the water-monitoring project in many junior and senior high schools as a part of the life science or biology courses, respectively. Students involved in this project take water samples from neighborhood streams and assist in analyzing the samples in terms of dissolved oxygen, pH, turbidity, and other water quality factors.

The school system works with other organizations to develop instructional supports on various environmental issues. One example is the Science, Technology, and Society (STS) project — a cooperative curriculum development effort between MCPS and the American Association for the Advancement of Science. The goal of the project was the production of learning materials based on the interrelationship between science and current social issues. One learning unit produced which has environmental components is *Energy and Society*. It has been approved as supplementary education material for senior high schools.

The MCPS *Environmental Education Resource Guide* is a reference tool which lists current instructional materials relating to environmental education and governmental and community resources that are available to the teacher. It can be used independently or in conjunction with *Environmental Education, A Maryland Approach* to assist teachers in incorporating environmental education activities in appropriate places in many subjects. The state document provides a conceptual framework for organizing an interdisciplinary approach to environmental education.

MCPS AND MARYLAND STATE DEPARTMENT OF EDUCATION PUBLICATIONS ON THE ENVIRONMENT

Aesthetic Considerations in Environmental Education, A Planning Guide for Administrators, Maryland State Department of Education, 1975.

Environmental Education, A Maryland Approach, Maryland State Department of Education, 1974.

Outdoor Education Program Handbook, 1978-79.

School Grounds as a Site for Inquiry, Bulletin 234, 1970. (Available from the Smith Center)

Student Resource Manual, Energy and Society, 1975.

Teacher Resource Manual, Energy and Society, 1975.

Environmental Education Resource Guide, 1978.

GIFTED AND TALENTED PROGRAM

POINT OF VIEW

The need to develop a comprehensive program specifically designed for gifted and talented students at all grade levels and in all subject areas has been fully documented in the reports of the Task Force and Advisory Committees on the Education of Gifted and Talented Students. As stated in the 1975 Task Force Report, the MCPS commitment to respond to the special educational needs of the gifted is found in the Goals of Education (adopted February 12, 1973 by the Board of Education of Montgomery County):

> Each school must create a program and maintain a climate in which every student has opportunities for success. Each individual is unique, and the school shall encourage that uniqueness. . . . The achievement of all other goals depends upon the success of the school in ensuring that each student, *according to his [/her] own abilities,* attains the . . . basic skills. (Italics added.)

"All curriculum should motivate and provide opportunities for students to develop knowledge and skills commensurate with their particular abilities, potential and interests. In the case of gifted students, such a curriculum should extend, supplement, replace, and/or accelerate the regular program; provide many opportunities to practice the higher-order cognitive skills of application, analysis, synthesis, and evaluation in many situations, both concrete and abstract; provide experiences which require the student to communicate in figural, semantic, behavioral, and symbolic forms, to think convergently and divergently, and to reason inductively and deductively. In addition, this curriculum should stress higher affective goals for each major learning outcome so that attention is paid not only to these students' intellectual needs but also to their social and emotional growth."[1]

GENERAL INFORMATION

The Montgomery County Public Schools continues to use as its working definition the U.S. Office of Education definition of the gifted and talented:

> Gifted and talented children are those identified by professionally qualified persons [as being those] who, by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.
>
> Children capable of high performance include those with demonstrated and/or potential ability in any of the following areas, singly or in combination:
>
> 1. general intellectual ability
> 2. specific academic aptitude
> 3. creative or productive thinking
> 4. leadership ability
> 5. visual and performing arts
> 6. psychomotor ability

Differentiated programs, experiences, and services must accommodate both the special learning characteristics which apply generally to gifted and talented students and the specific individual differences which exist within the group of gifted and talented students.

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1. *Initial Report of the Task Force on the Gifted and Talented,* July 15, 1975, p. 8.

Elements of the curriculum which can be differentiated include objectives, content, processes, personnel and material resources, and evaluation. Educational experiences should differ in breadth and/or depth, in tempo or pace, and in kind, being additional to or of a different nature from the regular program.

The curriculum should provide the gifted and talented with opportunities to develop the knowledge, skills, and insights which will:

a) Enable them to deal competently with themselves, with others, and with the world about them as human beings, citizens, parents

b) Build a sound liberal foundation to sustain the vigorous development of specialized competencies at the higher levels which such individuals can handle

c) Foster self-direction, independence, a love of learning, and a desire to create and experiment with ideas and things

d) Provide the self-understanding, inner consistency, and ethical standards to see their own uniqueness in terms of responsibility to society

e) Stimulate critical thinking and a scientific approach to solving their persistent problems

f) Nurture an appreciation of the various cultural heritages bequeathed by societies through the ages

g) Motivate the desire to meet the special expectancies society has for individuals with unique talents

Instructional strategies for the gifted and talented should stress those methods which are clearly related to the special characteristics and the particular goals for these students. Instructional strategies which stress independent thinking and action; building of relationships; higher levels of abstraction; concept development; independent thinking and action; and acquisition of meanings are more appropriate than strategies which involve rote learning, repetitive drill, and the acquisition of more information. Instructional strategies should include:

a) Activities which enable the individual to experience the thrill of discovery and the satisfaction of curiosity through one's own efforts

b) Activities which develop an understanding of the problem-solving process, of the tools and know-how of research, and of the resources available for problem solving

c) Activities which motivate and develop the ability to think critically, reflectively, and objectively and which assist students in judging the quality of their thinking and in internalizing the importance of exercising critical judgments

d) Activities which foster independence of work and study, encouraging students to follow their interests and focus on tasks until self-set goals are realized

e) Activities which provide for the development of skills in communication, observation, computation, cooperation, and similar specifics which are the precursors to any original creative efforts

f) Activities which provide opportunities for examining values and testing their validity

g) Activities which nurture the desire for creative expression, encouraging students to formulate creative ideas, to explore various areas for original expression

h) Activities which build the skills of conceptualizing, generalizing, and synthesizing meanings

i) Activities which build the necessary competencies in an area of specialized talent by enabling the individual to practice the skills, to explore the nature and vistas of the talent area, and to recognize some of his/her own potentialities

j) Activities which attend to the higher affective areas and contribute to the individual's social and emotional growth

k) Activities which encourage and make possible probing in depth and breadth

While these same instructional strategies are *desirable* for *all* students, for the gifted and talented they are instructional strategy emphases which are *essential.*

DESCRIPTION OF PROGRAM

While no comprehensive differentiated program for gifted and talented has yet been developed by the Montgomery County Public Schools, special local projects have been designed and implemented throughout the system. At the elementary level, these projects generally enrich the experiences of students or accelerate them through the sequence of objectives in one or more of the content areas. In some few cases illustrated by such examples as *Prereading,* MCPS Bulletin No. 246, and the Early Childhood Education *Course of Study for the Student Aides for Kindergarten Teachers,* instructional objectives, activities, and assessment measures are specifically differentiated to provide for gifted students.

At the secondary level, examples of accelerated and advanced placement courses have been developed in a number of disciplines as a part of the comprehensive high school program. These courses are described in those *Program of Studies* sections devoted to the specific disciplines. At the secondary level, there are advanced courses in almost all subjects. In English, there is an Advanced Writing Workshop and a second year of Journalism as well as an advanced placement course. In mathematics, there are courses in algebra; analytic geometry; calculus; computer math; elementary functions; matrices; probability and statistics; and trigonometry as well as the Unified Math sequence of courses. In science, there are advanced courses in biology, chemistry, physical science, and physics. In social studies, there are advanced placement courses in United States history and European history. Advanced courses are also offered in the areas of foreign languages, art, music, and vocational education, many of these emphasizing career exploration and specialization.

Internship opportunities are also available in home economics, science, and social studies. The Executive High School Internship, a social studies program, gives gifted juniors and seniors an opportunity to work for a semester with business and government executives and administrators.

Examples of opportunities for students with special talents include Special Studio Art, the Einstein Art Cluster, and the multidisciplinary Summer Performing Arts Program which grants credit in advanced dance, advanced drama, advanced vocal music, and advanced instrumental music.

The summer Foreign Language Immersion Program in French and Spanish is designed for senior high students who, having completed Level III of one of the program languages, wish to develop further their communications skills through cultural experiences. Students pledge to use only the program language during the four-week summer session.

These are examples of courses or projects which could be incorporated into a K-12 comprehensive program designed by MCPS for gifted and talented students.

Student Leadership — Grades 9, 10, 11, 12* 1 year 1 credit

This course is designed to offer participating students a variety of classroom and laboratory experiences in leadership training. Opportunities are provided for the building of skills in such areas as communications, negotiations, organizational development, and activity design and execution. In addition, the course provides for a systematic study of the student government organization; its internal workings; and its relationship to the school, the school system, and school community.

Upon completion of Student Leadership, the student should be able to:

- identify and evaluate election procedures
- evaluate the advantages and disadvantages of various student government structures
- plan effective Student Government Association activities for the school year
- relate the role and function of student government officers to the school staff
- describe the strengths and weaknesses of the school's grievance procedure
- develop a grievance procedure appropriate to the school
- design and execute a campaign to inform the students and staff of the contents of the student discipline, rights, and responsibilities policy
- summarize and explain school law, policies, and court decisions that affect student life
- effectively use communications skills in the school setting
- design a negotiations model appropriate to his/her school situation
- analyze leadership roles and skills in his/her organization
- identify steps that will bring about the resolution of a school problem

*Students may receive credit for the course in only one year.

INSTRUCTIONAL OBJECTIVES FOR INFORMATION RETRIEVAL AND MEDIA PRODUCTION

POINT OF VIEW

Futurists predict that today's knowledge base will double within ten years and suggest that educators concern themselves with teaching students the skills they will need to become independent learners. The instructional portion of the school media program contributes to the development of independence in learners by teaching students basic process skills of access to information in both print and nonprint formats.

GENERAL INFORMATION

Instructional objectives relating to information retrieval and media production skills are defined as those which enable students to locate materials, to find information within materials, and to produce media as a means of communication and creative expression. The objectives are organized into three major groups.

I. Access to Library Media Center Resources — Skills which students need to locate resources within libraries

II. Use of Library Media Center Resources — Skills which students need to find information within selected resources

III. Production of Media — Skills which enable students to communicate and present ideas in both audio and visual formats

Within each group, the instructional objectives are organized by skill cluster. Grade levels K-12 are charted in grid format with three levels suggested for each objective. The *introductory level* indicates the grade level at which the skill is first presented. The *mastery level* indicates the grade level at which 70 percent of the student body is expected to master the objective. It may be necessary to adjust mastery levels to the abilities and interests of the students and the needs of the school program of instruction. The *maintenance and continued refinement level* indicates ongoing reinforcement of the objectives as well as application to advanced resources.

The introduction and continued application of these process skills are best achieved through their integration with the objectives identified in all skill and content areas of the instructional program. Implementation of the objectives which follow will require joint planning by teachers and media specialists in developing teaching strategies, determining instructional responsibilities, and assessing mastery levels of skills taught.

Instructional Objectives for
Information Retrieval and Media Production

Introductory

Mastery

Maintenance and continued refinement

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I. Access to Library Media Center Resources

A. Location of Resources

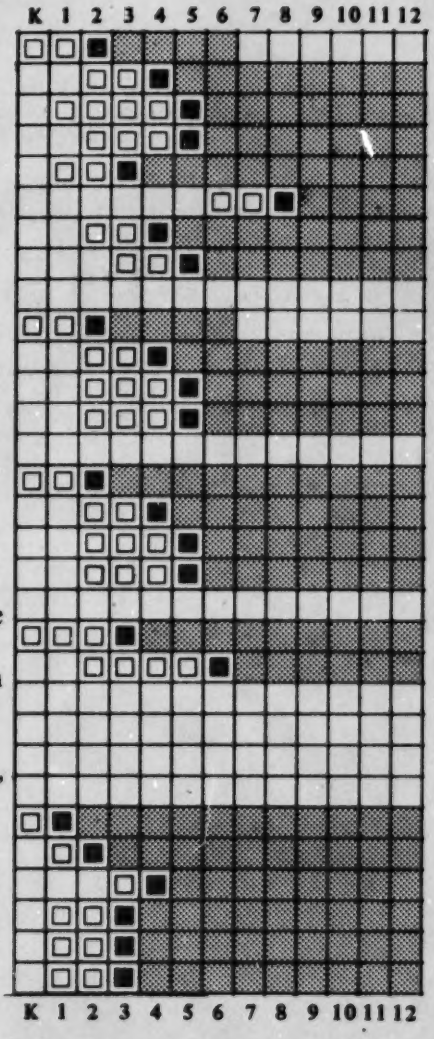
The student will

1. Explain the arrangement of
   - a) Picture books
   - b) Fiction
   - c) Nonfiction
   - d) Nonprint
   - e) Periodicals
   - f) Microforms
   - g) Vertical file
   - h) Special collections
2. Use call numbers to locate
   - a) Picture books
   - b) Fiction
   - c) Nonfiction
   - d) Nonprint
3. Explain composition of call numbers for
   - a) Picture books
   - b) Fiction
   - c) Nonfiction
   - d) Nonprint
4. Use category labels to locate general areas of the collection (e.g., fiction, nonfiction)
5. Use shelf labels to locate specific areas of the collection

B. Checkout and Return of Resources

The student will

1. Checkout and return to the appropriate place, according to procedures
   - a) Books
   - b) Periodicals
   - c) Vertical file materials
   - d) Nonprint materials
   - e) Overnight materials
   - f) Equipment

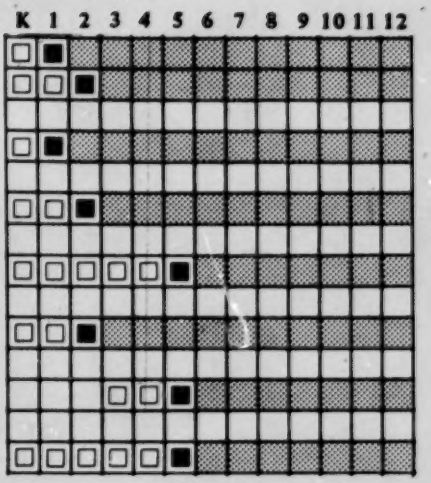


I. Access to the Library Media Center Resources

C. Student/Staff Cooperation

The student will

1. Name library media center personnel .....
2. Name hours of library media center service .....
3. Follow the appropriate procedure for visiting the library media center .....
4. Demonstrate consideration for others while in the library media center .....
5. Identify services provided by the library media center staff .....
6. Request assistance of library media center staff as needed .....
7. Explain procedure for recommending materials for purchase .....
8. Return to the designated place all materials used in the library media center .....

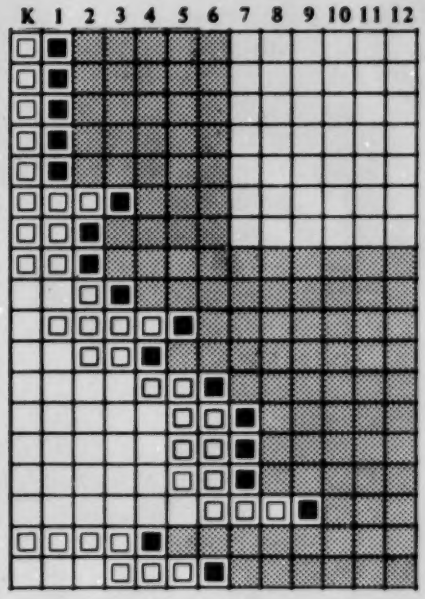


II. Use of Library Media Center Resources

A. Parts of Materials

The student will

1. Identify the following parts of materials:
   a) Cover .....
   b) Spine .....
   c) Book pocket .....
   d) Book card .....
   e) Book jacket .....
   f) Call number .....
   g) Title page .....
   h) Table of contents .....
   i) Index .....
   j) End papers .....
   k) Glossary .....
   l) Bibliography .....
   m) Appendix .....
   n) Preface .....
   o) Foreword .....
   p) List of illustrations .....
   q) Containers for nonprint materials .....
   r) Information on labels for nonprint materials ...



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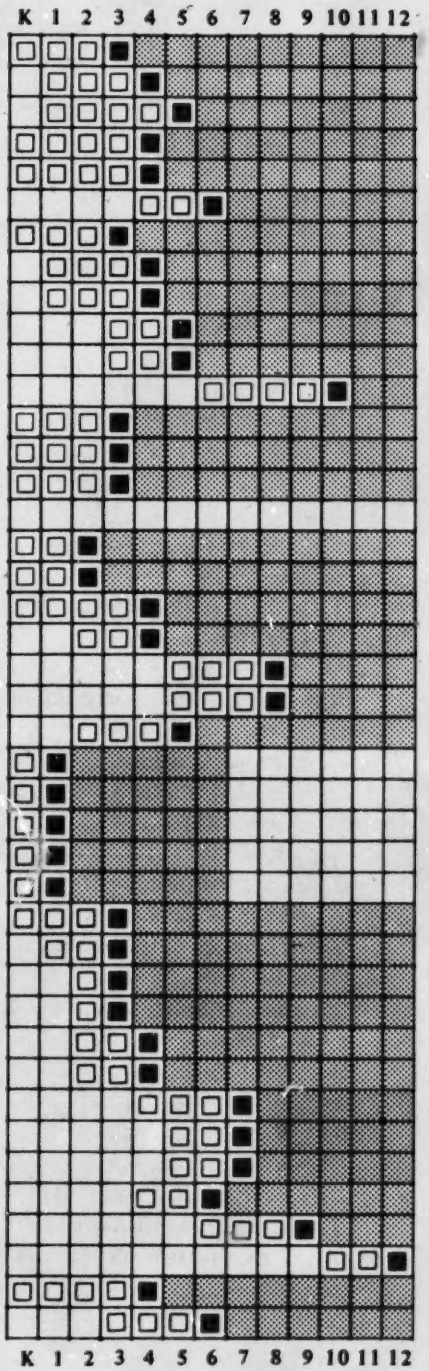
II. Use of Library Media Center Resources

B. Understandings about Materials

The student will

1. Identify format characteristics of
   - a) Books
   - b) Magazines
   - c) Newspapers
   - d) Filmstrips
   - e) Filmloops
   - f) Films
   - g) Records
   - h) Tapes
   - i) Kits
   - j) Transparencies
   - k) Slides
   - l) Microforms
   - m) Charts
   - n) Study prints
   - o) Realia
2. Explain the function of
   - a) Author
   - b) Illustrator
   - c) Publisher
   - d) Producer
   - e) Editor/compiler
   - f) Edition
   - g) Copyright date
   - h) Cover
   - i) Spine
   - j) Book pocket
   - k) Book card
   - l) Book jacket
   - m) Call number
   - n) Title page
   - o) Table of contents
   - p) Index
   - q) End papers
   - r) Glossary
   - s) Appendix
   - t) Preface
   - u) Foreword
   - v) Bibliography
   - w) List of illustrations
   - x) International Standard Book Number
   - y) Containers for nonprint materials
   - z) Information on labels for nonprint materials...



Introductory

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II. Use of Library Media Center Resources

B. Understandings about Materials (cont'd)

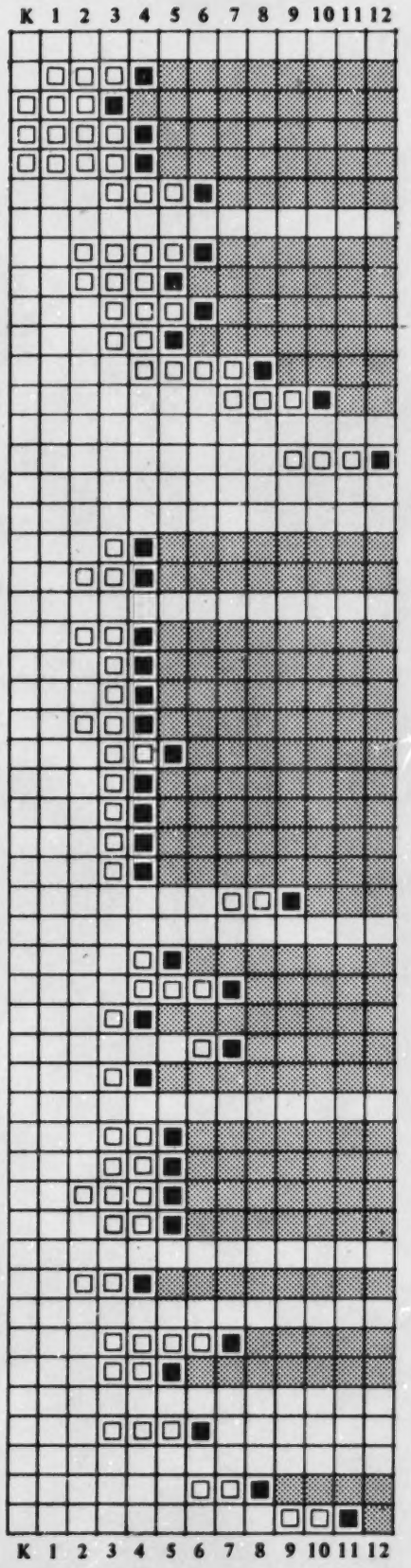
The student will

3. Determine the correct AV equipment to use with nonprint formats
4. Handle print materials correctly
5. Handle nonprint materials correctly
6. Distinguish between fiction and nonfiction
7. Verify a statement as fact using more than one source
8. Distinguish between the function and content of magazines and newspapers
9. Use copyright to determine currency of material
10. Explain copyright of originator
11. Explain content of vertical file
12. Identify point of view of specific material
13. Determine authority of originator
14. Distinguish between primary and secondary sources of information

C. Card Catalog

The student will

1. Use guide letters and guide words
2. Explain the purpose of the card catalog
3. Identify, on a catalog card
   a) Call number (include media code for nonprint)
   b) Author
   c) Title
   d) Subject
   e) Editor/compiler
   f) Illustrator
   g) Publisher
   h) Producer
   i) Copyright date
   j) Edition
   k) Collation (number of pages, illustrations, size of item, series note, frame, r.p.m.)
   l) Contents
   m) Annotation
   n) Location
4. Differentiate among author, title, and subject cards.
5. Determine whether information given in a particular question is the author, title, or subject
6. Use cross references — "See" and "See also"
7. Identify subjects related to the one being researched
8. Prepare a list of materials available on a given subject
9. Identify various kinds of materials using the media code above the call number (e.g., filmstrip, filmloop)
10. Distinguish between the function of a "See" and a "See also" reference
11. Apply alphabetizing rules used in the card catalog
12. Use public library catalogs
    a) Children's materials
    b) Adult materials (Record and periodical catalogs available at branch libraries.)
13. Identify subject, title, and author analytic



II. Use of Library Media Center Resources

D. General Reference Skills

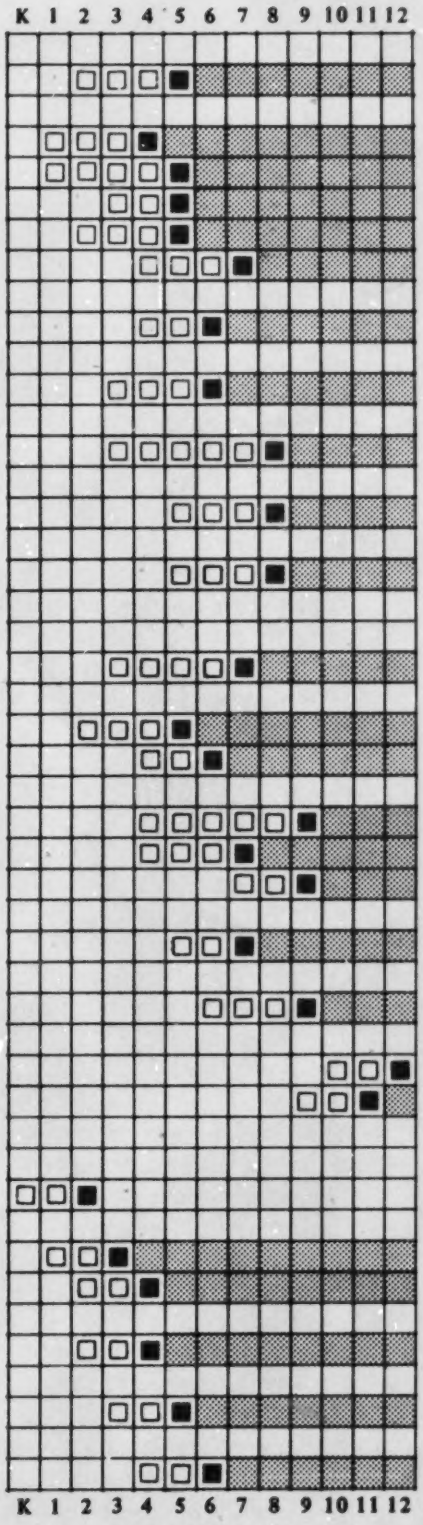
The student will

1. Identify the similarities and differences between the reference collection and the nonfiction collection ...
2. Determine the purpose and content of
   a) Dictionaries .....
   b) Encyclopedias .....
   c) Almanacs .....
   d) Atlases .....
   e) Yearbooks .....
3. Determine the most appropriate reference for a particular purpose.....
4. Identify alternative entry words for topic being investigated .....
5. Distinguish between word-by-word and letter-by-letter order.....
6. Identify the organization of the content of a particular reference.....
7. Identify how access is provided to the information in a particular reference (e.g., index approaches) .....
8. Use information in introductory pages and explanatory notes as aids to locating and interpreting information.....
9. Locate information arranged in
   a) Alphabetical order .....
   b) Calendar order .....
   c) Numerical order (e.g., *Documents of American History*) .....
   d) Geographical order.....
   e) Chronological order.....
10. Determine which periodicals the library media center receives.....
11. Distinguish the types of index approaches in the same title (e.g., *Bartlett's Book of Quotations*) .....
12. Distinguish between the function and content of annotated, abstracted, and analytical information ..
13. Distinguish between types of bibliographies.....

E. Dictionaries

The student will

1. Locate words in a picture dictionary.....
2. Use guide words and/or letters to locate the appropriate page for a given entry word .....
3. Locate specific entry words or names .....
4. Locate the section of a book which identifies letter codes and symbols used in the volume .....
5. Distinguish between the content of an abridged and an unabridged dictionary .....
6. Distinguish between the content of a general and a special dictionary .....



II. Use of Library Media Center Resources

E. Dictionaries (cont'd)

The student will

7. Interpret information in dictionary entries (e.g., part of speech, word origin)
   a) Picture
   b) Beginning
   c) Junior/intermediate
   d) Advanced
   e) Collegiate
   f) Unabridged
   g) Subject (e.g., science, foreign language)
   h) Biographical
   i) Geographical (gazetteer)

F. Encyclopedias

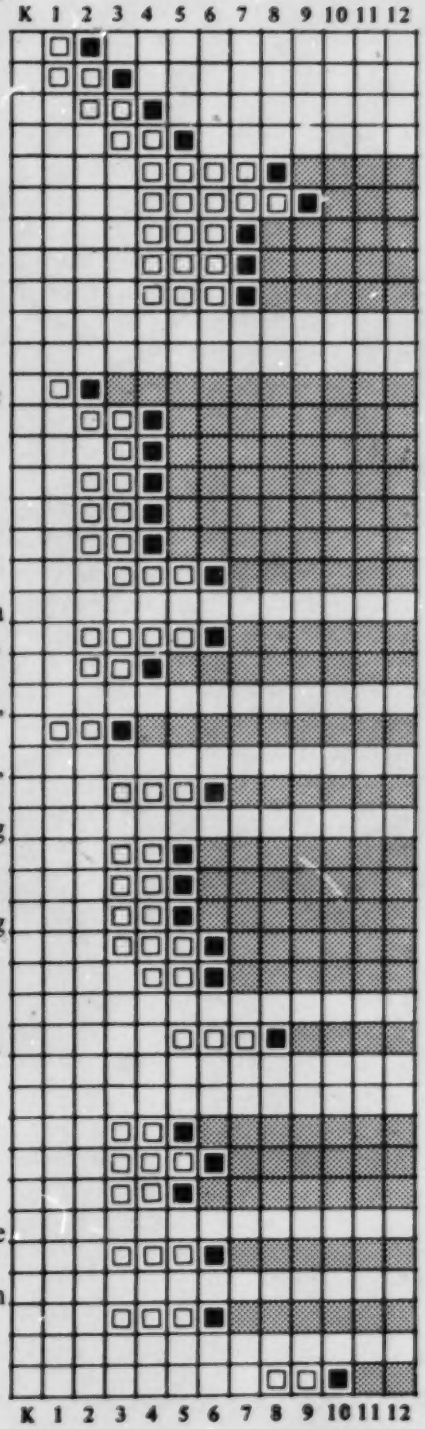
The student will

1. Use letter/number on spine to locate a specific volume
2. Locate articles in the volumes
3. Locate index within a set of encyclopedias
4. Use guide words to locate articles
5. Locate entry words in the index
6. Use subentries in the index
7. Interpret information in the index entry
8. Identify key words when determining parameters of a topic
9. Invert names of persons
10. Identify captions, photographs, pictures, maps, graphs, and charts
11. Distinguish purpose of photographs, pictures, maps, graphs, and charts
12. Use headings and subheadings as an aid to skimming an article
13. Use cross references such as "See" and "See also"
14. Distinguish between a main heading and a subheading
15. Use study aids at the ends of articles
16. Identify authors of signed articles
17. Distinguish between purpose and content of special encyclopedias

G. Almanacs

The student will

1. Explain frequency of publication
2. Explain purpose and content of an almanac
3. Use index to locate specific information
4. Use bold face headings to locate relevant segment of the page
5. Use captions and headings to locate information presented in tables
6. Differentiate between almanacs and statistical abstracts



II. Use of Library Media Center Resources

H. Atlases

The student will

1. Locate and decode symbols used .....
2. Distinguish between a physical and a political map .
3. Identify special maps (e.g., population, precipitation)
4. Identify coordinates and page number in index ....
5. Use coordinates to locate a specific place.....
6. Distinguish between a general and special atlas (e.g., nature, history) .....

I. Newspapers

The student will

1. Locate date of publication .....
2. Use index to locate specific information.....
3. Name sections of newspapers .....
4. Explain purpose of various sections of newspapers .
5. Distinguish similarities and differences among newspapers (e.g., local, area, national) .....

J. Magazines

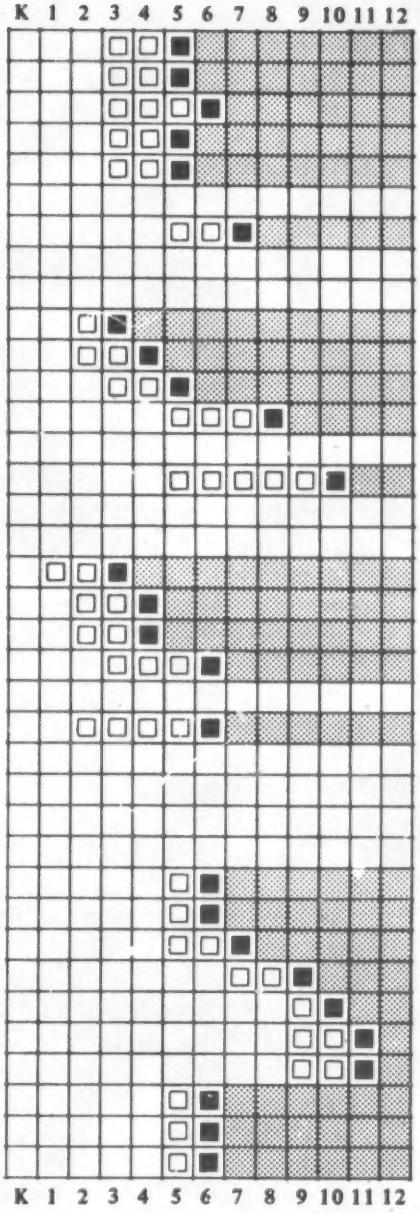
The student will

1. Locate date of publication .....
2. Locate table of contents .....
3. Use table of contents to locate articles .....
4. Locate and interpret subscription information .....
5. Distinguish similarities and differences among magazines (e.g., news, sports, hobbies).....

K. Periodical Indexes

The student will

1. Use the periodical indexes listed below to locate specific articles
   a) *Subject Guide to Children's Magazines* .....
   b) *National Geographic Index*.....
   c) *Abridged Readers' Guide* .....
   d) *Unabridged Readers' Guide* .....
   e) *New York Times Index* .....
   f) Microform indexes .....
   g) Specialized indexes.....
2. Locate pages which list symbols and abbreviations .
3. Decode symbols and abbreviations in entries .....
4. Use cumulative supplements .....



Introductory

Mastery

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II. Use of Library Media Center Resources

L. Additional References

The student will

1. State characteristics of

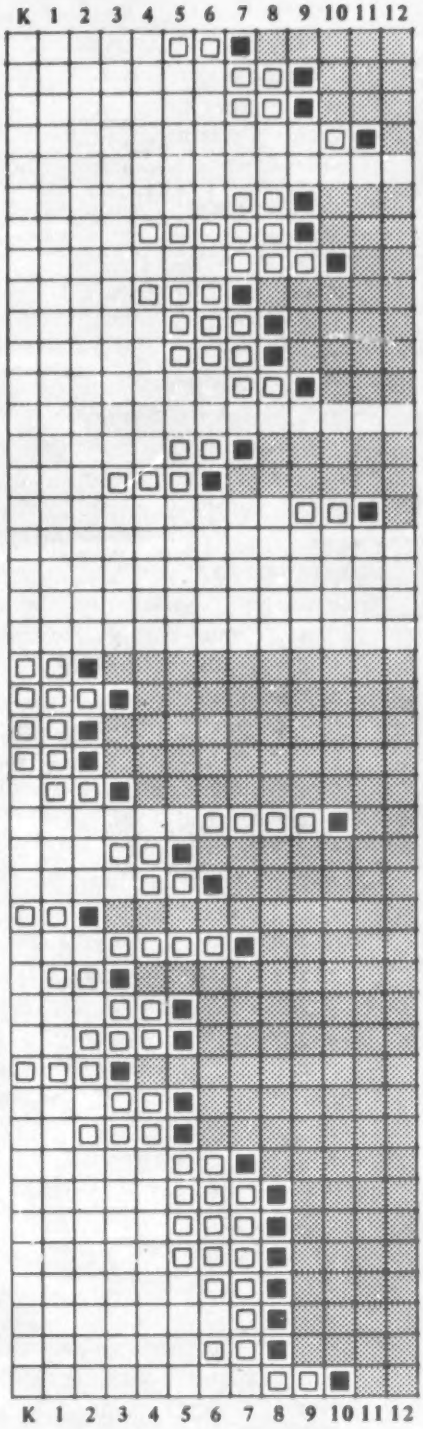
- a) Special encyclopedias
- b) Handbooks
- c) Manuals
- d) Data bank (including computer based)
- *e) Concordance
- f) Digests
- g) Directories (e.g., telephone)
- h) Statistical abstracts
- i) Travel guides
- j) Quotation books
- k) Catalogs
- l) Indexes
- *m) Bibliographies
- n) Special dictionaries
- o) Broadcast guides
- p) Anthologies
- *q) Codes

M. Equipment

The student will

1. Operate without assistance

- a) Record player
- b) Cassette recorder (play/record)
- c) Filmstrip previewer
- d) Overhead projector
- e) Filmloop projector
- f) Microform reader
- g) Filmstrip projector
- +h) 16mm projector
- +i) Language master
- +j) Videotape recorder
- k) Slide previewer
- +l) Slide projector
- m) Reel-to-reel recorder
- n) Listening station
- +o) Instamatic camera
- +p) Ektagraphic visualmaker
- +q) Polaroid camera
- +r) 35mm camera
- +s) Super 8mm camera
- +t) Editor
- +u) Splicer (film and tape)
- +v) Drymount press
- +w) Copy machines
- +x) Sound synchronizer



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III. Production of Media

A. Planning for Production

The student will

1. Select appropriate media format to communicate content or creative ideas .....
2. Prepare a storyboard .....
3. Write captions to accompany visuals .....
4. Write a script .....
5. Select musical background and/or sound effects to create desired effect .....

B. Audio Production

The student will

1. Record an audiotape of
   a) His/her own voice .....
   b) Prerecorded material .....
   c) A live presentation .....
   d) More than one sound source, including musical background or sound effects .....
   e) A scripted presentation .....
   f) Sound synchronized to a slide or film production

C. Visual Production — Graphics

The student will

1. Enlarge visuals using opaque projector and/or overhead projector (e.g., reproduce a map) .....
2. Use various techniques for lettering
   a) A stencil or guide .....
   b) Paper cutouts .....
   c) Pressure sensitive materials .....
   +d) Mechanical lettering devices .....
3. Make a handmade
   a) Filmstrip .....
   b) Slide .....
   c) Transparency .....
   d) Transparency with overlays .....

+4. Make a machine-made transparency .....

+5. Make a colorlift transparency .....

6. Represent a sequence of motions with a series of still pictures (e.g., flip book, zeotrope, animated film) ...

D. Visual Production — Photography

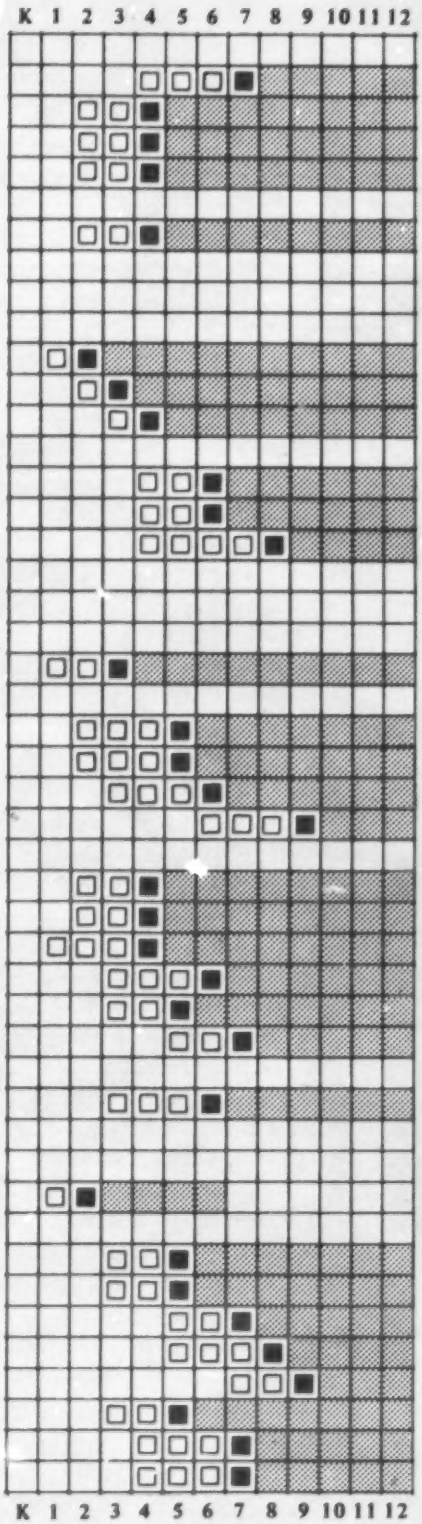
The student will

1. Make sun pictures .....
2. Take a series of slides or pictures with
   +a) Instamatic camera .....
   b) Ektagraphic visualmaker .....
   +c) Polaroid camera .....
   d) 35mm camera .....
   +e) 35mm camera and copystand .....

+3. Shoot a super 8mm film (live) .....

+4. Shoot a super 8mm animated film .....

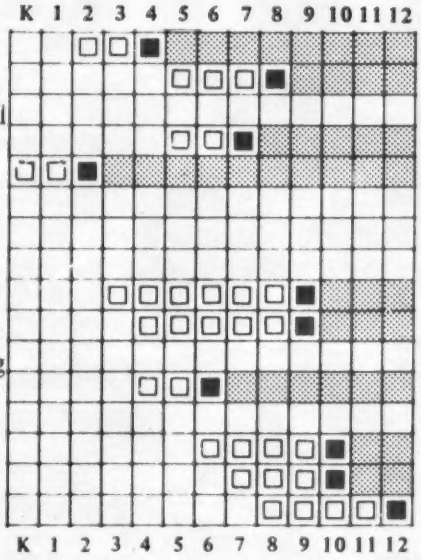
+5. Edit an 8mm film .....



III. Production of Media

E. Visual Production — Construction

The student will



1. Mount a picture using approved adhesive .....
2. Mount a picture using a drymount press .....
3. Laminate a picture using a drymount press or thermal copier .....
4. Make a model book .....

F. Audiovisual Production

The student will

1. Produce
   - +a) A slide/tape program .....
   - +b) A super 8mm film with recorded sound .....
   - +c) A videotape of a program or presentation using one camera .....
   - +d) A video program or presentation using two cameras .....
   - +e) A multi-screen presentation .....
   - +f) A multi-media presentation .....

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